

REMARKS

Claims 10-16, 18-21 and 23-25 remain for further consideration. No new matter has been added.

The undersigned attorney and Examiners Brandon Miller and William Trost conducted a telephone interview on Friday, June 4, 2004. We discussed the rejections set forth in the Official Action dated May 6, 2004, and in particular U.S. Patent 5,390,342 to Takayama. No agreement was reached. On June 10, 2004 Examiner Miller informed the undersigned about four additional U.S. patents that he thought may be relevant to the patentability of the claimed invention. Those four patents are cited in the accompanying IDS and discussed below. The undersigned would like to thank Examiners Miller and Trost for the courtesy of the interview.

The objections and rejections shall be taken up in the order presented in the Official Action.

1-2. Claims 10-11 and 20 currently stand rejected under 35 U.S.C. §103 for allegedly being obvious in view of the combined subject matter disclosed in U.S. Patent 5,390,342 to Takayama (hereinafter “Takayama”) and British Patent Application 1487500 to Baker (hereinafter “Baker”).

Claim 10

Claim 10 of the present invention recites “[a] method for selecting one of several receivers of a diversity receiving system, comprising comparing the levels of control signals of the automatic gain control of the receivers, and selecting the receiver whose control signal has the lowest level.” (emphasis added, cl. 10). It is alleged in the Official Action that “...Takayama teaches a method for selecting one of several receivers of a diversity receiving system and

selecting a receiver who control signal has the lowest level (see col. 1, lines 16-20, col. 4, lines 61-65, and col. 6, lines 20-22)." (Official Action, pg. 2). It is recognized that Takayama fails to disclose comparing the level of control signals of an automatic gain control of the receivers (see Official Action, pg. 2). It is then alleged that "*Baker teaches comparing the level of control signals of automatic gain control of diversity receivers (see 1st paragraph, line 10-15, 23-34, & 42-45, 2nd paragraph, lines 46-58 & 73-81, and 3rd paragraph, lines 47-55).*" (Official Action, pg. 2).

The Official Action contends that it would have been obvious to a skilled person at the time of the present invention "*...to make the Takayama adapt to include comparing the level of control signals of an automatic gain control of the receives because this would allow for receiver selection that would improve the broadcast state of received signals.*" (Official Action, pg. 2). However, assuming for the moment without admitting that Baker discloses the technical subject matter as alleged in the Official Action, Takayama and Baker can not be properly combined since Takayama teaches away from such a combination. Specifically, Takayama states:

"On the other hand, when attention is drawn to the internal problem of the receiving system, there are instances where there may occur small differences in the power gain of the front ends of the two respective receiving systems. To compensate such an unevenness in the operating characteristic (amplification degree), it is conceivable to use a gain controller. However, using the gain controller at high frequency circuits such as a front end, etc. is not preferable in view of generation of noise." (emphasis added, col. 1, line 65 - col. 2, line 6).

Accordingly, the clear and unambiguous language of Takayama expressly teaches away from automatic gain control, and therefore of course teaches away from any system that utilizes information indicative of automatic gain control. Takayama clearly states that the gain controller is not desirable due to the generation of noise. As a result, a person of ordinary skill in the art

would not have modified Takayama to include an AGC signal to control receiver selection in a diversity receiving system, since Takayama expressly states that the use of automatic gain control is not desirable.

The Official Action recognizes that Takayama mentions that using a gain controller is not preferred (Official Action, pg. 7). However, the Official Action then contends “*...this particular language does [not] exclude the use of automatic gain control from his invention. The language not preferred is not limiting to exclusion, Takayama even mentions that it would be possible to alter different functions of his invention (see col. 10, lines 15-18)*” (Official Action, pg. 7). However, it is respectfully submitted that if the present situation is not a case of teaching away, then the entire notion of teaching away void of any practical meaning. Teaching away does not have to be an emphatic, absolute statement that something should never be done. As known, patent applications are drafted to describe what the invention is, rather than drafting the application to recite what the invention is not and what should not be done. In the present case, when Takayama is read as a whole, the statement therein “[h]owever, using the gain controller at high frequency circuits such as a front end, etc. is not preferable in view of generation of noise.” (emphasis added, col. 2, lines 3-6). When read in the context of the field of radio receivers, generation of noise in any circuit is very undesirable, and electronic systems go to great lengths to reduce noise, especially when the operating speeds of the circuitry is increased. Takayama even goes on to state “It therefore, it is not necessary to provide a gain controller of the front end of a system.” (emphasis added, col. 9, lines 63-64). So this statement further teaches away from the present invention. Accordingly, it is submitted that a person of ordinary skill in the art would not have modified Takayama to include an AGC signal to control receiver

selection in a diversity receiving system, since Takayama expressly states that the use of automatic gain control is not desirable and a front end gain controller is unnecessary.

Claim 20

Claim 20 recites a diversity receiver system that includes:

“a plurality of radio receivers that each provide a uniquely associated receiver output signal and a uniquely associated receiver control signal that is indicative of the amount of gain applied by said associated radio receiver to create said uniquely associated receiver output signal; and

a selection mechanism that receives said receiver control signals, and determines which of said radio receivers has applied the smallest gain correction to its associated receiver output signal, and provides a diversity receiver output signal indicative of said receiver output signal associated with the receiver that applied the smallest gain correction.” (emphasis added, cl. 20).

As set forth above, Takayama teaches away from such a system (see col. 1, line 65 - col. 2, line 6). Hence, the combination of Takayama and Baker is incapable of being combined, and thus incapable of rendering claim 20 obvious.

ADDITIONAL PRIOR ART

On June 10, 2004 Examiner Miller identified four additional U.S. patents. We shall now discuss each of those patents, and why either alone or in combination the claims of the present invention are patentable over these references.

U.S. PATENT 5,339,452 TO SUGAWARA

Sugawara discloses a receiver that includes plurality of antennas, and a selection switching unit for selectively switching between the plurality of antennas. As shown in both FIGs. 1 and 2 of Sugawara, the selection switch is located immediately after the antennas, and the selected antenna signal is input to a single receiver for subsequent processing. In contrast, claim

10 of the present invention recites a method of selecting one of several receivers of a diversity receiving system. Sugawara neither discloses nor suggests selection between receivers – Sugawara merely selects between antennas and the selected antenna provides a signal to the single receiver.

Claim 10 of the present invention also recites that the method includes “comparing the levels of control signals of the automatic gain control of the receivers, and selecting the receiver whose control signal has the lowest level.” (emphasis added, cl. 10). As set forth above, Sugawara discloses only a single receiver. Therefore, there are not multiple control signals of the automatic gain control of the receivers as recited in claim 10 – in addition, there is no suggestion for multiple control signals since the system only needs one receiver. Sugawara clearly states that the antenna selection is performed using a muting control signal. Specifically, Sugawara states “the means for switching among the plurality of antennas are operated on the basis of the same signal, namely the muting control signal...” (emphasis added, col. 4, lines 37-39). In Sugawara the AGC amplifier is merely used to control the sensitivity of the antenna selection switching circuit (see col. 4, lines 48-50), and does not provide control signals that are used as recited in claim 10.

Therefore, it is respectfully submitted that Sugawara neither discloses nor suggests the subject matter of the claimed invention.

U.S. PATENT 6,115,591 TO HWANG

Hwang discloses a space diversity receiver signal combiner. As shown in FIGs. 1 and 2 of Hwang, antennas ANT1 and ANT2 provide signals that are combined in a combiner 110 to provide a combined signal. FIG. 2 of Hwang discloses “[s]ignal-to-noise comparator 210 compares the signal-to-noise ratio of the signal received from antenna ANT1 with the signal-to-

noise ratio of the signal received from antenna ANT2 based on the automatic gain control signals from the intermediate frequency amplifier... ” (col. 3, lines 38-42). The system of Hwang is a combiner – not a selector. Claim 10 recites a method of selecting one of several receivers, while Hwang discloses a system for combining signals from a plurality of antennas.

U.S. PATENT 5,559,838 TO NAKAGOSHI

Nakagoshi discloses a “*...diversity receiving apparatus comprising a plurality of receivers, the plurality of receivers are made operative only at the time of the received signal level comparison and only the selected receiver system is made operative after completion of the level comparison.*” (col. 10, lines 56-61). The system of Nakagoshi neither discloses nor suggests comparing the levels of control signals of the automatic gain control of the receivers. In fact, the terms “gain”, “AGC” and “automatic” are NOT even mentioned Nakagoshi.

In addition, the element power controller 6 of Nakagawa can not be viewed as satisfying the claimed feature of “*comparing the levels of control signals of the automatic gain control of the receivers, and selecting the receiver whose control signal has the lowest level*”, since Nakagoshi discloses that the power controller is used to simply apply power or not apply power to a detector. Specifically, Nakagoshi states “*the power controller 6 continues the power supply to only the receiver having the higher received signal level which is to continue the reception in accordance with the comparison result and stops the power supply of the other receiver.*” (col. 6, lines 45-49). This has nothing to do with automatic gain control, or more specifically with comparing the levels of control signals of the automatic gain control of the receivers, and selecting the receiver whose control signal has the lowest level as recited in claim 10.

Therefore, a fair and proper reading of Nakagoshi reveals that this reference neither discloses nor suggests “*comparing the levels of control signals of the automatic gain control of*

the receivers, and selecting the receiver whose control signal has the lowest level” as recited in claim 10.

U.S. PATENT 5,541,963 TO NAKAGOSHI

This patent is based upon the same specification as U.S. Patent 5,559,838 to Nakagoshi discussed above. Therefore, the subject matter it discloses is the same as U.S. Patent 5,559,838 to Nakagoshi discussed above - U.S. Patent 5,559,838 is a divisional off of U.S. Patent 5,559,838.

2. Claims 12-16 and 18-19 currently stand rejected under 35 U.S.C. §103 for allegedly being obvious in view of the combined subject matter disclosed in Takayama, Baker and U.S. Patent 5,777,693 to Kishigami et al (hereinafter “Kishigami”).

Claims 12-15

It is respectfully submitted that the §103 rejection of claims 12-15 is moot, and these claims are allowable since they depend either directly or indirectly from independent claim 10, which is patentable for at least all the reasons set forth above.

Claim 16

Claim 16 recites a receiver selection system that provides an output signal selected from at least first and second radio receivers. The selection system recited in claim 16 includes:

“a comparator that receives a first control signal from one of the radio receivers and a second control signal from another of the radio receivers... ; and a switching element responsive to said selection signal, ... , wherein said first control signal is indicative of the amount of gain applied by first automatic gain control circuitry of said first radio receiver to create said first data signal, and said second control signal is indicative of the amount of gain applied by second automatic gain control circuitry of said second radio receiver to create said second data signal.” (emphasis added, cl. 16).

As set forth above, a person working in the field of diversity radio receivers that select a receiver based upon a control signal indicative of the amount of automatic gain control, would not look to Takayama since this reference teaches away from gain control. Specifically, Takayama discloses:

“On the other hand, when attention is drawn to the internal problem of the receiving system, there are instances where there may occur small differences in the power gain of the front ends of the two respective receiving systems. To compensate such an unevenness in the operating characteristic (amplification degree), it is conceivable to use a gain controller. However, using the gain controller at high frequency circuits such as a front end, etc. is not preferable in view of generation of noise.” (emphasis added, col. 1, line 65 - col. 2, line 6).

Hence, a fair and proper reading of Takayama reveals that it teaches away from gain control, and thus the claimed invention. Accordingly, it is respectfully submitted that claim 16 contains allowable subject matter.

Claims 18 and 19

It is respectfully submitted that the rejection of claims 18 and 19 is moot, since independent claim 16 is patentable for at least all the reasons set forth above.

3. Claims 21 and 23-25 currently stand rejected under 35 U.S.C. §103 for allegedly being obvious in view of the combined subject matter disclosed in Takayama, Baker, Kishigami and U.S. Patent 5,745,845 to Suenaga et al (hereinafter “Suenaga”).

It is respectfully submitted that this rejection is now moot, since independent claim 20 is patentable for at least the reasons set forth above.

Page 8 of the Official Action identifies five U.S. patents that are not relied upon. However, those five patents have not been identified in the PTO-892 form that accompanied the Official Action. The undersigned requests that these references be identified on a PTO-892 form so they are properly of record in this matter.

For all the foregoing reasons, reconsideration and allowance of claims 10-16 and 18-21 and 23-25 is respectfully requested.

If a telephone interview could assist in the prosecution of this application, please call the undersigned attorney.

Respectfully submitted,



Patrick J. O'Shea
Reg. No. 35,305
Gauthier & Connors LLP
225 Franklin Street, Suite 3300
Boston, MA 02110
(617) 426-9180, Ext. 121